

What is Claimed Is:

1. A glucose monitoring system, comprising:
  - a sensor configured to detect one or more glucose levels;
  - a transmitter operatively coupled to the sensor, the transmitter configured to receive the detected one or more glucose levels, the transmitter further configured to transmit signals corresponding to the detected one or more glucose levels; and
  - a receiver operatively coupled to the transmitter configured to receive transmitted signals corresponding to the detected one or more glucose levels.
- 10 2. The system of claim 1 wherein the receiver is operatively coupled to the transmitter via an RF communication link.
- 15 3. The system of claim 1 wherein the transmitter is configured to encode the detected one or more glucose levels received from the sensor to generate encoded signals, the transmitter further configured to transmit the encoded signals to the receiver.
4. The system of claim 3 wherein the receiver is configured to decode the encoded signals received from the transmitter.
- 20 5. The system of claim 1 wherein the receiver includes an output unit for outputting the received transmitted signals corresponding to the detected one or more glucose levels.
6. The system of claim 5 wherein the output unit includes a display unit for displaying data corresponding to said one or more glucose levels.
- 25 7. The system of claim 6 wherein the display unit includes one of a LCD display, a cathode ray tube display, and a plasma display.
8. The system of claim 6 wherein the displayed data includes one or more of an alphanumeric representation corresponding to the one or more glucose levels, a graphical representation of the one or more glucose levels, and a three-dimensional representation of the one or more glucose levels.

9. The system of claim 6 wherein the display unit is configured to display the data corresponding to the one or more glucose levels substantially in real time.

10. The system of claim 5 wherein the output unit includes a speaker for outputting an 5 audio signal corresponding to said one or more glucose levels.

11. The system of claim 10 wherein the audio signal output from the speaker includes an alarm signal.

10 12. The system of claim 11 wherein the alarm signal is output when the detected one or more glucose level either exceeds a predetermined upper threshold glucose level or falls below a predetermined lower threshold glucose level.

15 13. The system of claim 12 wherein the strength of the alarm signal corresponds substantially directly to the level of deviation of the corresponding detected glucose level from the predetermined upper or lower threshold glucose level.

20 14. The system of claim 11 wherein the alarm signal is configured to be output when the corresponding detected glucose level, based on a rate of change of glucose level within a predetermined time frame, is determined to be within a time limit set for reaching a preset glucose level.

15. The system of claim 14 wherein the time limit set for reaching the preset glucose level may include one or a 10 minute period, 15 minute period, and 20 minute period.

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16. The system of claim 14 wherein the preset glucose level corresponds to one of a hyperglycemia state, a hypoglycemia state, an impending hyperglycemia state, and an impending hypoglycemia state.

30 17. The system of claim 1 wherein the receiver is configured to store an identification information corresponding to the transmitter.

18. The system of claim 1 wherein the receiver is configured to synchronize with the transmitter based on the signal strength detected from the transmitter.

19. The system of claim 18 wherein the detected signal strength exceeds a preset

5 threshold level.

20. The system of claim 1 wherein the transmitter is encased in a substantially water tight housing.

10 21. The system of claim 1 wherein the transmitter includes a disable switch for temporarily disabling the transmission of the signals.

22. A glucose monitoring system, comprising:

a sensor configured to detect one or more glucose levels;

15 a transmitter operatively coupled to the sensor, the transmitter configured to receive the detected one or more glucose levels, the transmitter further configured to transmit signals corresponding to the detected one or more glucose levels;

a receiver operatively coupled to the transmitter configured to receive transmitted signals corresponding to the detected one or more glucose levels; and

20 an output unit for outputting the received transmitted signals corresponding to the detected one or more glucose levels, said outputted signal including one or more of a display signal and an audio signal.

23. The system of claim 22 wherein the audio signal includes an alarm signal

25 configured to be output when the corresponding detected glucose level, based on a rate of change of glucose level within a predetermined time frame, is determined to be within a time limit set for reaching a preset glucose level.

24. The system of claim 23 wherein the rate of change of the glucose level is determined

30 based on the detected glucose levels within the predetermined time frame.

25. The system of claim 23 wherein the time limit set for reaching the preset glucose level may include one or a 10 minute period, 15 minute period, and 20 minute period.

26. The system of claim 23 wherein the preset glucose level corresponds to one of a hyperglycemia state, a hypoglycemia state, an impending hyperglycemia state, and an impending hypoglycemia state.

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27. The system of claim 22 wherein the outputted signal corresponds substantially in real time to the detected glucose level.

28. A method of providing data communication in a glucose monitoring system, the  
10 method comprising the steps of:

receiving an identification information corresponding to a transmitter;  
detecting data within a predetermined RF transmission range;  
determining whether the detected data is transmitted from the transmitter;  
decoding the detected data;  
15 generating an output signal corresponding to the decoded data.

29. The method of claim 28 wherein the step of determining whether the detected data transmission is transmitted from the transmitter is based on the received identification information.

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30. The method of claim 28 wherein the step of determining whether the detected data transmission is transmitted from the transmitter is based on the signal strength and duration of the detected data within the predetermined RF transmission range.

25 31. The method of claim 28 wherein the step of decoding further includes the step of performing error correction on the decoded data.

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